Graves' disease: associated ocular myasthenia gravis and a thymic cyst

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A well recognized relationship exists between Graves' disease and myasthenia gravis, both diseases sharing certain immunogenetic features, eg HLA and Gm associations. Myasthenia gravis is 50 times more common in patients with Graves' disease as compared to the normal population. Ocular symptoms are the presenting feature in 40% of myasthenia gravis patients, but the disease is restricted to the ocular muscles in about 15% of cases. Some 70% of patients with myasthenia gravis have thymic involvement - usually thymic hyperplasia or thymoma. We describe a case of Graves' disease occurring concomitantly with restricted ocular myasthenia gravis (ROMG) and a thymic cyst.

Case report

A 69-year-old lady presented with tremor, palpitations, diplopia and weight loss of 1.5 stone over a 3 month period. Past medical history was unremarkable although she had recently been started on digoxin 250 μg daily by her general practitioner for control of atrial fibrillation. There was no family history of thyroid disease.

Examination revealed a slim lady of 50 Kg, atrial fibrillation 140/min, BP 130/75 and signs of mitral regurgitation on auscultation, but no evidence of cardiac failure. She had a fine tremor, a firm diffuse goitre and brisk tendon reflexes. Diplopia was present on lateral gaze and there was mild bilateral exophthalmos. The rest of the examination was normal.

Investigation revealed: total T4=152 nmol/l, Total T3=>5 nmol/l, TSH=<0.03 mU/l, microsomal antibodies positive one in 80[2] and thyroglobulin antibodies positive one in 40[2]. Chest X-ray revealed an apparently massive cardiac shadow with CTR 20/27 (Figure 1). An echocardiograph indicated moderate mitral regurgitation and a mildly dilated left atrium at 5.8 cm.

Following carbimazole and subsequently radioactive iodine (370 mBq-10mCi) therapy for Graves' disease, she became hypothyroid and required replacement thyroxine 100 μg daily.

On subsequent review bilateral ptosis was noted. A tensilon test proved positive, antibodies to acetyl choline receptors were present at 46×10^{-10} M and anti-striated muscle antibodies positive 1 : 15. Orbital computerized tomography (CT) revealed enlarged extraocular muscles and a mild proptosis. Electromyograph was normal. There were no systemic symptoms or signs of myasthenia gravis and a diagnosis of ROMG was made. This was treated with oral prednisolone. Thoracic CT scan (Figure 2) revealed that the apparent cardiomegaly on chest X-ray was due to an anterior mediastinal mass. This was resected and found to be a well encapsulated cyst measuring 12 cm×10 cm. Histological examination showed this to be a thymic cyst. No evidence of thymoma or thymic hyperplasia was found.

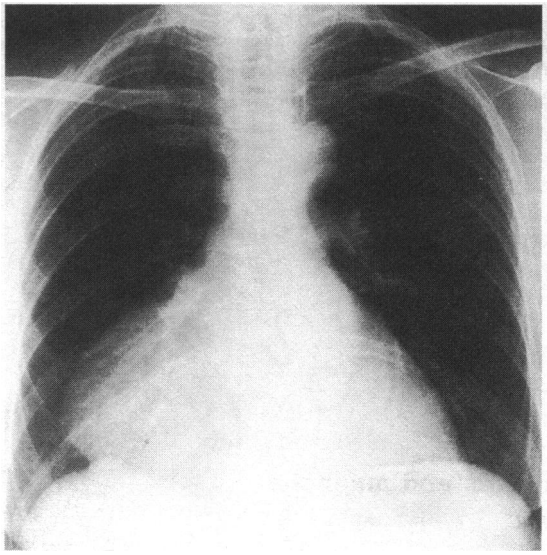

Figure 1. P-A chest X-ray showing an apparently massive cardiac shadow

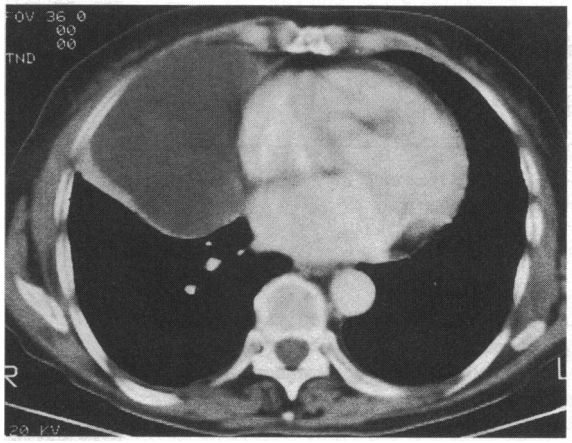

Figure 2. Thoracic computerized tomography scan revealing an anterior mediastinal mass

Discussion

Both Graves' disease and myasthenia gravis are mediated via autoantibodies to membrane receptors, anti-TSH R and anti-Ach R, respectively. Graves' disease develops in approximately 5% of patients with myasthenia gravis and conversely myasthenia gravis develops in 0.2% of patients with Graves' disease. Graves' disease more commonly occurs in association with the restricted ocular form of myasthenia gravis and this is reflected in the frequency with which thyroid antibodies are found in patients with ROMG and generalized myasthenia gravis, 40% and 12%, respectively[1].

In the presence of exophthalmos and extraocular muscle dysfunction due to Graves' disease, myasthenic symptoms and signs may be particularly difficult to elicit and therefore it is important to be aware of this association.

Thymic involvement occurs in 70-90% of myasthenic patients, with a thymoma complicating some 10% of cases. Thymectomy leads to remission of myasthenic symptoms in 80% of cases where thymic hyperplasia is found. It is unlikely, however, that resection of a thymic cyst would influence the natural history of myasthenia gravis and thus far this patient has not experienced any spontaneous improvement in her ROMG.

In a series of 1064 exploratory thoracotomies for mediastinal tumours, thymic cysts were found in only 19 cases[2]. They are often unassociated with autoimmune disease[3,4], although a thymic cyst has been noted in a patient with myasthenia gravis[5]. We believe that a thymic cyst represents another thymic lesion which may be found in association with myasthenia gravis, although the influence on the disease is probably minimal.

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References

1 Garlepp MJ, Dawkins RL. Christiansen FT, *et al.* Autoimmunity in ocular and generalised myasthenia gravis. *J Neuroimmunol* 1981;1:325-32

2 Wychulis AR, Payne WS, Clagett OT, Woolner LB. Surgical treatment of mediastinal tumors. *J Thorac Cardiovasc Surg* 1971; **62**:379-91

3 Graebar GM, Thompson LD, Ronnigen LD, Zajtchuk R. Cystic lesions of the thymus. *J Thorac Cardiovasc Surg* 1984;87:295-300
4 Lindfors KK, Meyer JE, Dedrick CG, Hassell LA, Harris NL. Thymic cysts in mediastinal Hodgkin disease. *Radiology* 1985; 156:37-41
5 Hale DA, Cohen AJ, Schaefer P, *et al.* Computerised tomography in the evaluation of myasthenia gravis. *Sthrn Med J* 1990; 83:414-16

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Cervical osteomyelitis and magnetic resonance imaging

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Cervical osteomyelitis is a rare disorder, with *Staphylococcus aureus* the offending pathogen in about 60% of cases[1]. Plain film, radioisotope scanning and computerized tomography, although sensitive, lack specificity for an imaging diagnosis. We report a case in which magnetic resonance imaging proved both sensitive and specific.

Case report

A 67-year-old male presented with sudden onset watery diarrhoea and vomiting. He had eaten 3 h before with his family, none of whom became ill. An insect bit his chest wall 5 months before, with localized erythema lasting 3 weeks. He felt hot, shivered, but had no rigors. The diarrhoea and vomiting settled after 24 h. He developed polydypsia and polyuria which continued. Three days later he gradually developed posterior neck pain limiting flexion and extension with proximal right arm weakness which progressed over 2 days.

He was afebrile and wore a rigid collar. The right arm was flaccid, with C5/6 power loss to MRC grade 1/5. The right biceps jerk was absent, supinator jerk inverted and triceps jerk was brisk. Sensation was normal and no abnormalities were detected in the left arm or either leg.

Investigations showed a WBC 25×10^9/l, ESR 84 mm/h, blood glucose 17.8 mmol/l. Arterial blood gases normal. X-rays showed narrowing of the disc space between C5/C6, erosion of the vertebral plates and osteophytes. Blood cultures grew *Staphylococcus aureus*, but stool culture was negative.

Cervical spine MRI showed increased signal from the C5/6 disc on T2-weighted sagittal images indicating discitis (Figure 1) and evidence of vertebral osteomyelitis and cord compression on axial scans (Figure 2).

The neurosurgical opinion was that cord decompression was not indicated. He was treated with a 6-week course of Flucloxacillin and Fucidin. At 12 weeks, neck movements had markedly improved, with normal tone and increased power in the C5/C6 distribution to 4/5. The ESR had fallen to 42 mm/h and WBC 6.8×10^9/l.

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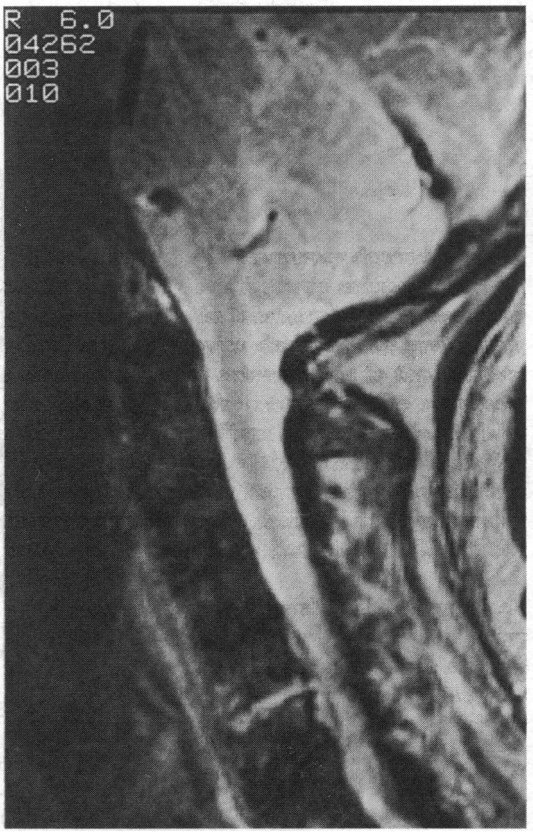

Figure 1. T-2 weighted spin echo sagittal magnetic resonance imaging showing increased signal intensity of C5/6 disc

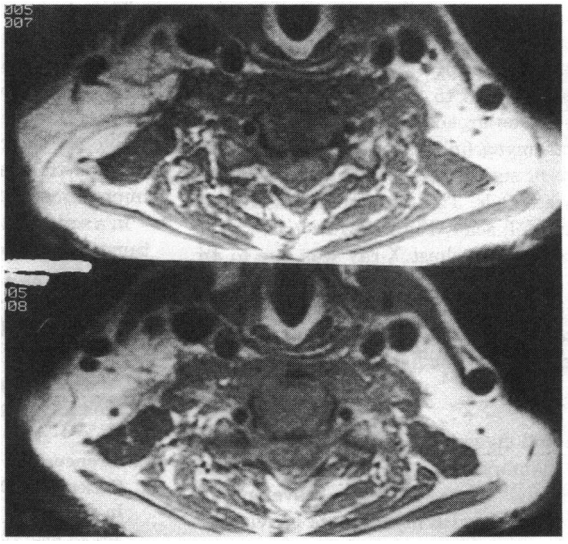

Figure 2. Axial magnetic resonance imaging through C5/6 depicting vertebral osteomyelitis with anterior cord compression